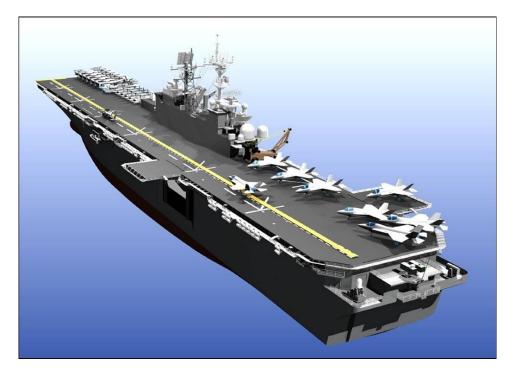


Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-333



LHA 6 America Class Amphibious Assault Ship (LHA 6)

As of FY 2017 President's Budget

Defense Acquisition Management Information Retrieval (DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance

ACAT - Acquisition Category

ADM - Acquisition Decision Memorandum

APB - Acquisition Program Baseline

APPN - Appropriation

APUC - Average Procurement Unit Cost

\$B - Billions of Dollars

BA - Budget Authority/Budget Activity

Blk - Block

BY - Base Year

CAPE - Cost Assessment and Program Evaluation

CARD - Cost Analysis Requirements Description

CDD - Capability Development Document

CLIN - Contract Line Item Number

CPD - Capability Production Document

CY - Calendar Year

DAB - Defense Acquisition Board

DAE - Defense Acquisition Executive

DAMIR - Defense Acquisition Management Information Retrieval

DoD - Department of Defense

DSN - Defense Switched Network

EMD - Engineering and Manufacturing Development

EVM - Earned Value Management

FOC - Full Operational Capability

FMS - Foreign Military Sales

FRP - Full Rate Production

FY - Fiscal Year

FYDP - Future Years Defense Program

ICE - Independent Cost Estimate

IOC - Initial Operational Capability

Inc - Increment

JROC - Joint Requirements Oversight Council

\$K - Thousands of Dollars

KPP - Key Performance Parameter

LRIP - Low Rate Initial Production

\$M - Millions of Dollars

MDA - Milestone Decision Authority

MDAP - Major Defense Acquisition Program

MILCON - Military Construction

N/A - Not Applicable

O&M - Operations and Maintenance

ORD - Operational Requirements Document

OSD - Office of the Secretary of Defense

O&S - Operating and Support

PAUC - Program Acquisition Unit Cost

PB - President's Budget

PE - Program Element

PEO - Program Executive Officer

PM - Program Manager

POE - Program Office Estimate

RDT&E - Research, Development, Test, and Evaluation

SAR - Selected Acquisition Report

SCP - Service Cost Position

TBD - To Be Determined

TY - Then Year

UCR - Unit Cost Reporting

U.S. - United States

USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

LHA 6 America Class Amphibious Assault Ship (LHA 6)

DoD Component

Navy

Responsible Office

Mr. Thomas Rivers Program Executive Office, Ships Amphibious Warfare Program Office 1333 Isaac Hull Avenue Washington, DC 20376-2101 Phone:202-781-0940Fax:202-781-4567DSN Phone:326-0940DSN Fax:326-4596

Date Assigned: September 28, 2015

thomas.m.rivers@navy.mil

References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 12, 2006

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated May 8, 2012

Mission and Description

The LHA Replacement (LHA (R)) Program is planned to replace existing LHA 1 Class Amphibious Assault Ships, which reach the end of their extended service lives between 2011 and 2015.

The LHA (R) will be the key platform in the Expeditionary Strike Group (ESG)/Amphibious Ready Group (ARG) of the future and will provide the Joint Force Commander options to project expeditionary power. The LHA 6 America Class, the first ship of the LHA (R) Program, will embark and support all of the Short Take-off Vertical Landing (STOVL) and Vertical Take-off Landing Marine expeditionary aviation assets in the ESG/ARG, including the MV-22 and the F-35B, the STOVL model of the Joint Strike Fighter. The LHA 6 America Class is an LHD 8 gas turbine variant with enhanced aviation capability. The Flight 0 ship will embark over 1,600 Marines and transport them and their equipment ashore by rotary-wing aircraft when the situation requires. The Flight I ship maintains an aviation centric capability with the addition of a well deck that will accommodate two Landing Craft, Air Cushion. The Flight I ship will embark over 1,400 Marines and transport them and their equipment ashore by rotary-wing or surface connector.

Executive Summary

The LHA (R) program completed another successful year, with each of the three ships of the LHA (R) Program achieving significant milestones. Delivered to the Navy in April of 2014, the LHA 6 (USS AMERICA) Post Delivery Test and Trial test phase is currently in progress. The test phase has included the completion of signature measurements, Combat System Ship Qualification Trials events, Final Contract Trials, and will resume upon the completion of Post Shakedown Availability (PSA). PSA is currently underway in San Diego, CA. The 50% PSA conference was held on October 7, 2015 and the availability is scheduled to complete in March 2016.

The LHA 7 (TRIPOLI) continued sustained production at Huntington Ingalls Industries (HII), Ingalls Shipbuilding Division in Pascagoula, MS. At the end of 2015, the ship's physical progress was 40% complete. A formal Program Manager's Estimate at Completion (PMEAC) for LHA 7 has commenced, as Earned Value progress for Vessel labor hours has reached 20% complete. The release of the PMEAC is currently forecasted for third quarter FY 2016.

LHA 8, the LHA (R) Flight 1 variant, has completed its contract design phase. Early industry involvement contracts with HII and National Steel and Shipbuilding Company (NASSCO) were initiated in November 2012 to allow industry participation in the design development for LHA 8. The contracts were modified in February 2014 to add Congressional plus-up funding for more in-depth Affordability Design initiatives. The period of performance for these efforts ended in August 2015. In February 2015, contract options were exercised under these base contracts for systems engineering and planning work with a period of performance through May 2016. These FY 2015 Procurement funded efforts are directly in support of the planned FY 2016 Detail Design and Construction (DD&C) contract award. The Request for Proposal for the Planning, Advanced Engineering and Procurement of Long Lead Time Material with option for DD&C was issued to HII and NASSCO in June 2015. Proposals were received on December 18, 2015 and are under evaluation. Contract award is currently planned for third quarter FY 2016.

There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breach	es	
Schedule		V
Performance	9	
Cost	RDT&E	V
	Procurement	V
	MILCON	
	Acq O&M	V
O&S Cost		
Unit Cost	PAUC	
	APUC	

Nunn-McCurdy Breaches

Current UCR Baseline

PAUC None APUC None

Original UCR Baseline

PAUC None APUC None

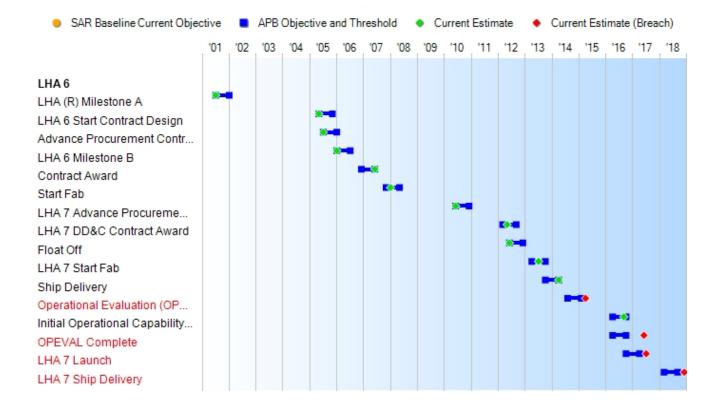
Explanation of Breach

Schedule breaches were previously reported in the December 2014 and June 2015 SARs.

Cost breaches were previously reported in the December 2009 and the December 2010 SARs.

A Program Deviation Report memorandum was issued by Assistant Secretary of the Navy for Research, Development and Acquisition on November 10, 2015 to USD(AT&L) documenting the noted breaches and the current program estimates. These deviations will be integrated into a revised APB in support of the LHA 8 contract award DAB program review in third quarter FY 2016.

Schedule



Schedule Events									
Events	SAR Baseline Development Estimate	Devel	nt APB opment /Threshold	Current Estimate					
LHA (R) Milestone A	Jul 2001	Jul 2001	Jan 2002	Jul 2001					
LHA 6 Start Contract Design	May 2005	May 2005	Nov 2005	May 2005					
Advance Procurement Contract	Jul 2005	Jul 2005	Jan 2006	Jul 2005					
LHA 6 Milestone B	Jan 2006	Jan 2006	Jul 2006	Jan 2006					
Contract Award	Dec 2006	Dec 2006	Jun 2007	Jun 2007					
Start Fab	Nov 2007	Nov 2007	May 2008	Jan 2008					
LHA 7 Advance Procurement Contract Award	N/A	Jun 2010	Dec 2010	Jun 2010					
LHA 7 DD&C Contract Award	N/A	Mar 2012	Sep 2012	May 2012					
Float Off	Aug 2010	Jun 2012	Dec 2012	Jun 2012					
LHA 7 Start Fab	N/A	Apr 2013	Oct 2013	Jul 2013					
Ship Delivery	Dec 2011	Oct 2013	Apr 2014	Apr 2014					
Operational Evaluation (OPEVAL) Start	Aug 2012	Aug 2014	Feb 2015	Apr 2015 ¹					
Initial Operational Capability (IOC)	Sep 2013	Apr 2016	Oct 2016	Sep 2016					
OPEVAL Complete	Sep 2013	Apr 2016	Oct 2016	Jun 2017 ¹					
LHA 7 Launch	N/A	Oct 2016	Apr 2017	Jul 2017 ¹					
LHA 7 Ship Delivery	N/A	Mar 2018	Sep 2018	Dec 2018 ¹					

¹ APB Breach

Change Explanations

None

Acronyms and Abbreviations

DD&C - Detail Design and Construction Fab - Fabrication

Performance

Performance Characteristics										
SAR Baseline Development Estimate	Current Develop Objective/T	ment	Demonstrated Performance	Current Estimate						
Net Ready										
100% of interfaces; services; policy-enforcement controls; and data correctness, availability and processing requirements in the joint integrated architecture	100% of interfaces; services; policy- enforcement controls; and data correctness, availability and processing requirements in the joint integrated architecture	100% of interfaces; services; policy- enforcement controls; and data correctness, availability and processing requirements designated as enterprise level or critical in the joint integrated architecture	TBD	100% of interfaces; services; policy-enforcement controls; and data correctness, availability and processing requirements designated as enterprise level or critical in the joint integrated architecture						
Vertical Take Off and Lar	nding land/launch spots									
9 CH-53E/MV-22	9 CH-53E/MV-22	9 CH-53E/MV-22	TBD	9 CH-53E/MV-22						
F-35B capacity										
23 Aircraft	23 Aircraft	20 Aircraft	TBD	23 Aircraft						
Aviation operations										
6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	TBD	6 spots 10 hours/day 12 hours/day of flight quarters to support 10 hours/day of flight operations						
Vehicle space										
12,000 sq. ft.	12,000 sq. ft.	10,000 sq. ft.	TBD	11,760 sq. ft.						
Total manpower (include etc.)	s ship's force and all emb	parked elements such a	as troops, staffs	, detachments,						
2,891 Persons	2,891 Persons	2,891 Persons	TBD	2,831 Persons						
Cargo space										
160,000 cu. ft.	160,000 cu. ft.	130,000 cu. ft.	TBD	160,000 cu. ft.						
Troop accomodations										
1,686 Persons	1,686 Persons	1,626 Persons	TBD	1,686 Persons						
Survivability: Navy Survi	vability Policy for Surface	Ships								
Equals threshold, implement recommendat-	Equals threshold, implement recommendat-	Level II per OPNAV- INST 9070.1 of	TBD	Equals threshold, implement						

ions of the NAVSEA USS COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003	ions of the NAVSEA COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003	September 23, 1988 (LHA(R) cargo magazine protection as stated in para. 6.b.17 of the CDD		recommend-ations of the NAVSEA COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003
Force Protection: Collec	tive Protection System (C	PS)		
Expanded CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities as well as key operational spaces that can be affordably integrated into ship design	Expanded CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities as well as key operational spaces that can be affordably integrated into ship design	CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities	TBD	CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities
Force Protection: Decon	tamination Stations			
Four decontaminat-ion stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr per station	Four decontaminat-ion stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr per station	Four decontaminat-ion stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr per station	TBD	Four decontamination stations (two CPS, one casualty, and one conventional) providing a capability of decontamin-ation an avg of ten people per hr per station

Classified Performance information is provided in the classified annex to this submission.

Requirements Reference

Capability Development Document (CDD) dated December 17, 2009

Change Explanations

None

Acronyms and Abbreviations

avg - average

CBR - Chemical, Biological, and Radiological

cu - cubic

etc. - etcetera

ft. - feet

hrs - hours

INST. - Instruction

NAVSEA - Naval Sea Systems Command

OPNAV - Office of the Chief of Naval Operations

sq. - square

Track to Budget

RDT&E				
Appn		ВА	PE	
Navy	1319	04	0603564N	
	Proj	ject	Name	
	0408		Ship Preliminary Design & Feasibility Studies/Ship Development	(Shared) (Sunk)
Navy	1319	05	0604567N	
	Proj	ject	Name	
	2465		Ship Contract Design/Live Fire T&E	
	9235		Ship Contract Design/Live Fire Test & Evaluation/LHA (R) DESIGN	(Shared) (Sunk)
	9236		Ship Contract Design/Live Fire Test & Evaluation/LHA(R) DESIGN	(Shared) (Sunk)
	9999		Congressional Add	(Sunk)
Procurement				
Appn		ВА	PE	
Navy	1611	03	0204411N	
	Line	ltem	Name	
	3041		LHA Replacement	
	N	otes:	LHA Replacement End Cost	
Navy	1611	05	0204411N	
	Line	ltem	Name	
	5110		Outfitting (Shared)	
	5300		Completion of Prior Year (Shared) ((Sunk)
		-4	Shipbuilding Programs	an of
	N	otes:	Budget realigned to line item 3041 during y execution.	eai Oi
Acq O&M				
Appn		ВА	PE	
Navy	1804	01	0204411N	
	Proj	ject	Name	
	1C6C		LHA(R) TADTAR	

Cost and Funding

Cost Summary

Total Acquisition Cost												
	B	Y 2006 \$M		BY 2006 \$M	TY \$M							
Appropriation	SAR Baseline Development Estimate	Current Develop Objective/T	oment	Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate					
RDT&E	199.9	240.6	264.7	378.9 ¹	197.5	239.9	403.2					
Procurement	2677.5	5420.9	5963.0	7952.0 ¹	2896.0	6563.4	10421.9					
Flyaway				7952.0			10421.9					
Recurring				7952.0			10421.9					
Non Recurring				0.0			0.0					
Support				0.0			0.0					
Other Support				0.0			0.0					
Initial Spares				0.0			0.0					
MILCON	0.0	0.0		0.0	0.0	0.0	0.0					
Acq O&M	0.0	1.6	1.8	2.2 ¹	0.0	1.6	2.2					
Total	2877.4	5663.1	N/A	8333.1	3093.5	6804.9	10827.3					

¹ APB Breach

Confidence Level

Confidence Level of cost estimate for current APB: 50%

The estimate to support this program, like most cost estimates, is built upon a product-oriented work breakdown structure based on historical actual cost information to the maximum extent possible, and, most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which we have been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for MDAPs. Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about as likely the estimate will prove too low or too high for the program as described.

Total Quantity										
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate							
RDT&E	0	0	0							
Procurement	1	2	3							
Total	1	2	3							

Cost and Funding

Funding Summary

	Appropriation Summary													
FY 2017 President's Budget / December 2015 SAR (TY\$ M)														
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total					
RDT&E	354.1	8.5	9.5	8.1	14.6	2.4	6.0	0.0	403.2					
Procurement	6542.7	491.7	1638.8	1692.0	39.2	17.5	0.0	0.0	10421.9					
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Acq O&M	1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0	2.2					
PB 2017 Total	6897.8	500.4	1648.5	1700.3	54.0	20.1	6.2	0.0	10827.3					
PB 2016 Total	6902.0	302.4	1547.1	2107.4	54.8	22.8	0.0	0.0	10936.5					
Delta	-4.2	198.0	101.4	-407.1	-0.8	-2.7	6.2	0.0	-109.2					

	Quantity Summary												
FY 2017 President's Budget / December 2015 SAR (TY\$ M)													
Quantity Undistributed Prior FY FY FY FY FY FY TO Complete Total										Total			
Development	0	0	0	0	0	0	0	0	0	0			
Production	0	2	0	1	0	0	0	0	0	3			
PB 2017 Total	0	2	0	1	0	0	0	0	0	3			
PB 2016 Total	0	2	0	1	0	0	0	0	0	3			
Delta	0	0	0	0	0	0	0	0	0	0			

Cost and Funding

Annual Funding By Appropriation

	Annual Funding 1319 RDT&E Research, Development, Test, and Evaluation, Navy												
		TY \$M											
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program						
2001							15.2						
2002							4.9						
2003							38.1						
2004							52.9						
2005							43.0						
2006							21.6						
2007							12.9						
2008							10.9						
2009							7.6						
2010							8.7						
2011							10.0						
2012							20.4						
2013							24.3						
2014							76.5						
2015							7.1						
2016							8.5						
2017							9.5						
2018							8.1						
2019							14.6						
2020							2.4						
2021							6.0						
Subtotal							403.2						

	Annual Funding 1319 RDT&E Research, Development, Test, and Evaluation, Navy												
		BY 2006 \$M											
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program						
2001							16.6						
2002							5.3						
2003							40.7						
2004							55.0						
2005							43.5						
2006							21.2						
2007							12.4						
2008							10.3						
2009							7.1						
2010							8.0						
2011							8.9						
2012							17.9						
2013							21.1						
2014							65.6						
2015							6.0						
2016							7.1						
2017							7.8						
2018							6.5						
2019							11.5						
2020							1.9						
2021							4.5						
Subtotal							378.9						

Annual Funding 1611 Procurement Shipbuilding and Conversion, Navy										
			TY \$M							
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program			
2005		149.2			149.2		149.2			
2006		350.1			350.1		350.1			
2007	1	1131.1			1131.1		1131.1			
2008		1365.8			1365.8		1365.8			
2009		190.7			190.7		190.7			
2010		169.5			169.5		169.5			
2011	1	937.6			937.6		937.6			
2012		1942.1			1942.1		1942.1			
2013		173.6			173.6		173.6			
2014		68.3			68.3		68.3			
2015		64.7			64.7		64.7			
2016		491.7			491.7		491.7			
2017	1	1638.8			1638.8		1638.8			
2018		1692.0			1692.0		1692.0			
2019		39.2			39.2		39.2			
2020		17.5			17.5		17.5			
Subtotal	3	10421.9			10421.9		10421.9			

Annual Funding 1611 Procurement Shipbuilding and Conversion, Navy										
			BY 2006 \$M							
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program			
2005		141.6			141.6		141.6			
2006		321.0			321.0		321.0			
2007	1	991.6			991.6		991.6			
2008		1157.9			1157.9		1157.9			
2009		156.8			156.8		156.8			
2010		134.7			134.7		134.7			
2011	1	721.4			721.4		721.4			
2012		1461.4			1461.4		1461.4			
2013		128.1			128.1		128.1			
2014		49.5			49.5		49.5			
2015		46.1			46.1		46.1			
2016		343.6			343.6		343.6			
2017	1	1123.6			1123.6		1123.6			
2018		1137.6			1137.6		1137.6			
2019		25.8			25.8		25.8			
2020		11.3			11.3		11.3			
Subtotal	3	7952.0			7952.0		7952.0			

Cost Quantity Information 1611 Procurement Shipbuilding and Conversion, Navy						
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2006 \$M				
2005						
2006						
2007	1	2836.8				
2008						
2009 2010						
2010	 1	2520.1				
2012	I	2020.1				
2012						
2014						
2015						
2016						
2017	1	2595.1				
2018						
2019						
2020						
Subtotal	3	7952.0				

Annual Funding 1804 Acq O&M Operation and Maintenance, Navy					
Figor	TY \$M				
Fiscal Year	Total Program				
2010	0.2				
2011	0.2				
2012	0.2				
2013	0.1				
2014	0.1				
2015	0.2				
2016	0.2				
2017	0.2				
2018	0.2				
2019	0.2				
2020	0.2				
2021	0.2				
Subtotal	2.2				

Annual Funding 1804 Acq O&M Operation and Maintenance, Navy					
Fiscal	BY 2006 \$M				
Year	Total Program				
2010	0.2				
2011	0.2				
2012	0.2				
2013	0.1				
2014	0.1				
2015	0.2				
2016	0.2				
2017	0.2				
2018	0.2				
2019	0.2				
2020	0.2				
2021	0.2				
Subtotal	2.2				

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	2/14/2006	5/8/2012
Approved Quantity	1	2
Reference	LHA(R)/LHA 6 Milestone B ADM	LHA(R)/LHA 6/LHA 7 Milestone B ADM
Start Year	2007	2007
End Year	2013	2018

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the ADM dated February 14, 2006, which approved one ship, which is standard for shipbuilding programs.

An additional ADM authorized a second ship on May 8, 2012.

Foreign Military Sales

None

Nuclear Costs

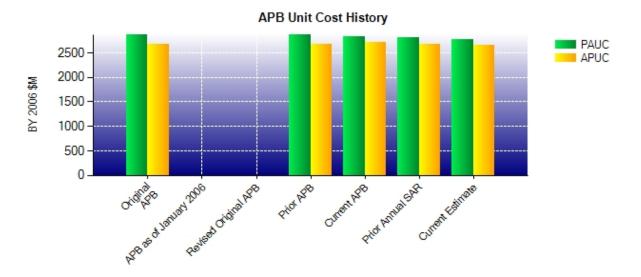
None

Unit Cost

Unit Cost Report

	BY 2006 \$M	BY 2006 \$M	
Item	Current UCR Baseline (May 2012 APB)	Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	5663.1	8333.1	
Quantity	2	3	
Unit Cost	2831.550	2777.700	-1.90
Average Procurement Unit Cost			
Cost	5420.9	7952.0	
Quantity	2	3	
Unit Cost	2710.450	2650.667	-2.21
	BY 2006 \$M	BY 2006 \$M	
ltem	BY 2006 \$M Original UCR Baseline (Jan 2006 APB)	BY 2006 \$M Current Estimate (Dec 2015 SAR)	% Change
Item Program Acquisition Unit Cost	Original UCR Baseline	Current Estimate	% Change
	Original UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost	Original UCR Baseline (Jan 2006 APB)	Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost Cost	Original UCR Baseline (Jan 2006 APB)	Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost Cost Quantity	Original UCR Baseline (Jan 2006 APB) 2877.4	Current Estimate (Dec 2015 SAR) 8333.1	
Program Acquisition Unit Cost Cost Quantity Unit Cost	Original UCR Baseline (Jan 2006 APB) 2877.4	Current Estimate (Dec 2015 SAR) 8333.1	
Program Acquisition Unit Cost Cost Quantity Unit Cost Average Procurement Unit Cost	Original UCR Baseline (Jan 2006 APB) 2877.4 1 2877.400	Current Estimate (Dec 2015 SAR) 8333.1 3 2777.700	

Unit Cost History



Item	Date	BY 200	6 \$M	TY \$M		
item	Date	PAUC	APUC	PAUC	APUC	
Original APB	Jan 2006	2877.400	2677.500	3093.500	2896.000	
APB as of January 2006	N/A	N/A	N/A	N/A	N/A	
Revised Original APB	N/A	N/A	N/A	N/A	N/A	
Prior APB	Jan 2006	2877.400	2677.500	3093.500	2896.000	
Current APB	May 2012	2831.550	2710.450	3402.450	3281.700	
Prior Annual SAR	Dec 2014	2802.733	2676.533	3645.500	3511.367	
Current Estimate	Dec 2015	2777.700	2650.667	3609.100	3473.967	

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC	Changes							PAUC	
Development Estimate	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	Current Estimate
3093.500	271.200	566.567	3.133	19.500	-435.467	90.667	0.000	515.600	3609.100

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC	Changes								APUC Current
Development Estimate	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	Estimate
2896.000	271.500	698.234	3.133	0.000	-485.567	90.667	0.000	577.967	3473.967

SAR Baseline History								
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate				
Milestone A	N/A	Jul 2001	N/A	Jul 2001				
Milestone B	N/A	Jan 2006	N/A	Jan 2006				
Milestone C	N/A	N/A	N/A	N/A				
IOC	N/A	Sep 2013	N/A	Sep 2016				
Total Cost (TY \$M)	N/A	3093.5	N/A	10827.3				
Total Quantity	N/A	1	N/A	3				
PAUC	N/A	3093.500	N/A	3609.100				

Cost Variance

		Summary TY \$1	M		
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	197.5	2896.0			3093.5
Previous Changes					
Economic	-0.5	+802.4			+801.9
Quantity		+7886.7			+7886.7
Schedule		+17.4			+17.4
Engineering	+58.5				+58.5
Estimating	+144.9	-1340.4		+2.0	-1193.5
Other		+272.0			+272.0
Support					
Subtotal	+202.9	+7638.1		+2.0	+7843.0
Current Changes					
Economic	-0.4	+12.1			+11.7
Quantity					
Schedule		-8.0			-8.0
Engineering					
Estimating	+3.2	-116.3		+0.2	-112.9
Other					
Support					
Subtotal	+2.8	-112.2		+0.2	-109.2
Total Changes	+205.7	+7525.9		+2.2	+7733.8
CE - Cost Variance	403.2	10421.9		2.2	10827.3
CE - Cost & Funding	403.2	10421.9		2.2	10827.3

Summary BY 2006 \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	199.9	2677.5			2877.4
Previous Changes					
Economic					
Quantity		+6142.3			+6142.3
Schedule		-33.3			-33.3
Engineering	+49.5				+49.5
Estimating	+127.2	-1006.6		+2.0	-877.4
Other		+249.7			+249.7
Support					
Subtotal	+176.7	+5352.1		+2.0	+5530.8
Current Changes					
Economic					
Quantity					
Schedule					
Engineering					
Estimating	+2.3	-77.6		+0.2	-75.1
Other					
Support					
Subtotal	+2.3	-77.6		+0.2	-75.1
Total Changes	+179.0	+5274.5		+2.2	+5455.7
CE - Cost Variance	378.9	7952.0		2.2	8333.1
CE - Cost & Funding	378.9	7952.0		2.2	8333.1

Previous Estimate: June 2015

RDT&E	\$1	VI
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.4
Revised estimate to reflect execution year realignments and Navy Working Capital Fund (NWCF) rate adjustments. (Estimating)	+2.0	+2.9
Adjustment for current and prior escalation. (Estimating)	+0.3	+0.3
RDT&E Subtotal	+2.3	+2.8

Procurement	\$N	1
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+12.1
Revised phasing of LHA 8 funding from FY 2018 to FY 2016 to support advance procurement lead time requirement. (Schedule)	0.0	-8.0
Revised estimate for LHA 8 procurement cost due to Service reductions. (Estimating)	-62.5	-94.7
Revised estimate for NWCF rate adjustments. (Estimating)	+2.6	+3.8
Revised estimate for inflation rates on Non-pay and Non Fuel Purchases. (Estimating)	-12.3	-18.0
Revised estimate for LHA (R) Outfitting and Post Delivery requirements. (Estimating)	-1.3	-2.0
Adjustment for current and prior escalation. (Estimating)	-4.1	-5.4
Procurement Subtotal	-77.6	-112.2

Acq O&M	\$1	И
Current Change Explanations	Base Year	Then Year
LHA 8 acquisition requirement refinement for FY 2021. (Estimating)	+0.2	+0.2
Acq O&M Subtotal	+0.2	+0.2

Contracts

Contract Identification

Appropriation: Procurement

Contract Name: LHA 7 Detail Design & Construction Contract (DD&C)

Contractor: Huntington Ingalls Incorporated

Contractor Location: 1000 Access Road

Pascagoula, MS 39567

Contract Number: N00024-10-C-2229

Contract Type: Fixed Price Incentive(Firm Target) (FPIF)

Award Date: June 30, 2010

Definitization Date: May 31, 2012

	Contract Price							
Initial Cor	ntract Price (\$M)	Current Contract Price (\$M) E			Estimated Pr	Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager	
2355.0	2664.9	1	2450.4	2772.4	1	2599.8	2450.4	

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of scope for the incorporation of Flight Deck Strengthening and the Joint Strike Fighter modifications. Additional change is the result of expenses related to Pension Protection Act Harmonization and Katrina Depreciation settlements, and various engineering change proposals.

Contract Variance				
Item	Cost Variance	Schedule Variance		
Cumulative Variances To Date (1/24/2016)	-107.2	-2.3		
Previous Cumulative Variances	-71.7	+7.5		
Net Change	-35.5	-9.8		

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to continued labor inefficiencies in Hull departments. Additional variance is attributed to high indirect costs in General and Administrative (G&A) and Overhead accounts, well above what was established in the performance measurement baseline.

The unfavorable net change in the schedule variance is due to milestone payments for material items being achieved later than what was baselined.

Notes

The LHA 7 Advance Procurement Contract and Long Lead Time Material CLIN has been subsumed by the LHA 7 DD&C contract. The Program Manager Estimated Price at Completion (PMEAC) reflects the Current Target Price of the contract. A formal PMEAC for LHA 7 has commenced, as Earned Value progress for Vessel labor hours has reached 20% complete.

Deliveries and Expenditures

Deliveries					
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered	
Development	0	0	0		
Production	1	1	3	33.33%	
Total Program Quantity Delivered	1	1	3	33.33%	

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	10827.3	Years Appropriated	16
Expended to Date	4916.8	Percent Years Appropriated	76.19%
Percent Expended	45.41%	Appropriated to Date	7398.2
Total Funding Years	21	Percent Appropriated	68.33%

The above data is current as of February 09, 2016.

Total expenditures are representative of LHA 6 and LHA 7.

Operating and Support Cost

Cost Estimate Details

Date of Estimate: April 02, 2012

Source of Estimate: POE
Quantity to Sustain: 2
Unit of Measure: Ship

Service Life per Unit: 40.00 Years

Fiscal Years in Service: FY 2017 - FY 2062

Two ships currently in production, the LHA 6 and LHA 7, will be sustained over a 40 year life cycle. Sustainment requirements for a planned third ship, the LHA 8, will be included upon competition of the Program Life Cycle Cost Estimate, third quarter FY 2016. O&S costs for LHA 8 will be included in the next SAR.

The intent is to estimate the normal costs of operating and supporting the ship in typical peacetime operations. Additional costs that might be incurred under wartime operating scenarios are not included. Potential costs of currently unplanned and unknown future upgrades or configuration changes are assumed to occur in the same proportion as modernization work that has occurred on the LHD 1 ship classes. Operating & Support Cost Analysis Model (OSCAM) builds the O&S costs by month, and the results show the estimated cost by year based on the Operational Tempo (OPTEMPO) and maintenance cycle. In order to obtain a per year estimate, the total O&S cost as reported by OSCAM (without disposal costs included) is divided by the 40 year life expectancy. Nominal OPTEMPO is assumed to be 2700 hours steaming underway and 1200 hours steaming not underway, based on the fuel burn rates and time profiles provided by the LHA 6 design team (in section 6.0 of the CARD).

Sustainment Strategy

The LHA 6 sustainment strategy includes the use of commercial shipyards for depot maintenance in concert with Organizational and Intermediate level maintenance strategies. Existing shore support and infrastructure will be used to the maximum extent possible. Life cycle cost savings are anticipated from fuel savings realized from the propulsion system and Manpower savings expected from operations and maintenance of the Gas Turbine engines.

Antecedent Information

The antecedent system designated for LHA 6 is LHD 1. LHD 1 Unitized O&S Costs (BY 2006 \$M) were developed in 2013 and also reflect the Operating and Support Cost Analysis Model (OSCAM) historical average dataset for LHD 1. Visibility and Management of Operating and Support Costs data reflects average O&S return data for active ships (LHD1-7) between FY 1992 and FY 2011. Open Architectural Retrieval System Open Architectural Retrieval System 3-M data includes the years FY 2001 through FY 2011. Like the LHA 6 and LHA 7 Unitized O&S Costs, antecedent costs reflect a 40 year life cycle.

Projected manning on LHA 6 and LHA 7 includes approximately 24 fewer officer and 55 fewer enlisted personnel than the average historical manning on LHD 1-7. However, FY 2006 Military Pay Rates utilized to estimate LHA (R) Flight 0 Personnel are approximately 12 percent higher than the average LHD 1-7 historical rates, which were inflated to FY 2006. Therefore, Unit Level Personnel costs do not reflect expected savings due to reduction in crew size. If personnel rates were normalized, the LHA 6 and LHA 7 would show an approximate 10 percent savings when compared to the antecedent class. The discrepancy between historical rates and the FY 2006 set could be driven in part by actual crews being manned with lower ranking personnel than that assumed in the LHA 6 and LHA 7 baseline.

For comparative purposes, the FY 2006 cost per barrel of Diesel Fuel, Marine (DFM) was substituted for the historical average cost of DFM observed in LHD 1 class data. This methodology better aligns LHD 1 historical requirements for Unit Operations with estimated requirements for the LHA 6 and LHA 7.

In line with LHA 6 and LHA 7 Maintenance requirements, antecedent Maintenance costs reflect requirements laid out in the Office of the Chief of Naval Operations 4700 (2011).

The scope of LHD 1 Indirect Support costs, which were first mandated in the OSD, CAPE O&S Cost Estimating Guide (published October 2007), align with LHA 6 and LHA 7 requirements but reflect a larger average historical crew size than that projected for the LHA 6 and LHA 7.

Annual O&S Costs BY2006 \$M				
Cost Element	LHA 6 Average Annual Cost Per Ship	LHD 1 (Antecedent) Average Annual Cost Per Ship		
Unit-Level Manpower	65.684	63.895		
Unit Operations	11.953	18.246		
Maintenance	27.936	33.525		
Sustaining Support	4.440	4.873		
Continuing System Improvements	7.692	7.376		
Indirect Support	27.247	31.094		
Other	0.000	0.000		
Total	144.952	159.009		

		Total O&S	Cost \$M	
Item		LHA 6		
Item		Current Development APB Objective/Threshold		LHD 1 (Antecedent)
Base Year	12095.2	13304.7	11596.3	12720.7
Then Year	24951.0	N/A	23788.5	N/A

Equation to Translate Annual Cost to Total Cost

Total O&S Cost = 2 Ships x 40 Service Life x Unitized LHA 6 Cost or LHD 1 Antecedent Cost

O&S Cost Variance				
Category	BY 2006 \$M	Change Explanations		
Prior SAR Total O&S Estimates - Jun 2015 SAR	11596.3			
Programmatic/Planning Factors	0.0			
Cost Estimating Methodology	0.0			
Cost Data Update	0.0			
Labor Rate	0.0			
Energy Rate	0.0			
Technical Input	0.0			
Other	0.0			
Total Changes	0.0			
Current Estimate	11596.3			

Disposal Estimate Details

Date of Estimate: April 02, 2012

Source of Estimate: POE

Disposal/Demilitarization Total Cost (BY 2006 \$M): Total costs for disposal of all Ship are 19.8

The CG class of ship was determined by the Naval Sea Systems Command (NAVSEA) Inactive Ships Program Office (PMS 333) as most comparable to the LHA 7 out of those vessels historically disposed of by NAVSEA. The decision to use the CG class of ships was based upon the comparison of warship compartmentalization, hazardous materials to remove and hull weight, influenced by scrap metal commodity prices.